



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

646.3513
Job Sheet 168238



Part No: 646.3513

Job Qty: 6 ea

Part Name: Strut



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 11/13/17

Job Tracking No:

Due Date: 12/1/17

Created By: Linda Lacelle

Type: Stock

Description:

Note: DWG REV N/C 3 IPP REV:A 12.10.19 NEW ISSUE DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	6 Ea		11/30/17	0.00	0.00	Start Up Large Fab-1		DL 17/12/22
110	Waterjet	6 pcs		11/30/17	0.00	0.25	Waterjet1		DL 17/12/22
120	QC	6 pcs		11/30/17	0.00	0.00	QC2		DL 17/12/22
130	QC	6 pcs		11/30/17	0.00	0.00	QC8		DL 17/12/22
140	Small Fab	6 pcs		11/30/17	0.00	3.55	Small Fab		DYC 18/01/11
150	QC	6 pcs		11/30/17	0.00	0.00	QC5		DL
160	Large Fab	6 pcs		11/30/17	0.00	5.56	Large Fab 1		DYC 18/01/12
170	QC	6 pcs		11/30/17	0.00	0.00	QC9		DL
180	QC	6 pcs		11/30/17	0.00	0.00	QC5		DL
220	SprayPaint	6 pcs		12/1/17	0.00	0.22	Spray Paint		AL JAN 14 2018
230	QC	6 pcs		12/1/17	0.00	0.00	QC14		AL 11 JAN 17 2018
240	Packaging	6 pcs		12/1/17	0.00	0.00	Packaging3		AT 18/01/18
250	QC21-SA	6 Ea		12/1/17	0.00	0.00	QC21		CKE108A

Part Op 110 - 1-Cut 646.3500 plate 2.00"X 2.00" as per Dwg

Descriptions: 140 - 1- Fabricate tube as per dwg

160 - Weld tube to plate as per dwg. DT9868

220 - Prime as per dwg (see note 3) 138374

240 - ***IDENTIFY AS PER APICAL MPP-120 BY STAMPING THE P# AND REV***

Job Allocations

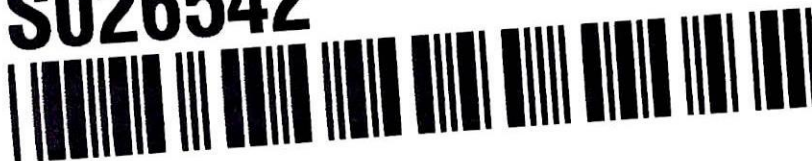
Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	M304S16GA	0	45	0	0
140-Small Fab	M304TR0.500W.049	6	41	0	0

Part Specifications

Specifications could not be found.

Plex 11/14/17 6:53 AM dart.boucher.sylvie

DART
AEROSPACE
S026542



Strut

PART NO: 646.3513

Revision:

Operation:

Change No:

Start up Operation

Dart Aerospace Ltd.

1270 Aberdeen Street
Hawkesbury, ON K64 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Mfg Date: 12/22/17

Job No: 168238

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 04274				SHEET 1 OF 1	
	DWG NO. 646.3500	REV: NC	PREPARED BY J. SOTO	DATE: 12/02/2013		EFFECT ON DWG ☐ INC. ☒ UNINC.
	DWG TITLE: STRUT					
	APPROVED BY: ENGR <i>[Signature]</i>	MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF. NEXT ORDER		
TRANSACTION CODES (TC): A-ADD R-REVISE C-CREATE D-DELETE	REASON: REVISED DELTA NOTE 1 & 2.					

SHEET 1, ZONE A1 IS:

- IS** →
- NOTES:
- 1 MATERIAL: AISI 304/ 316 SS SHEET .062 THK
(REF DART SPEC. M304S16GA)
 - 2 MATERIAL: AISI 304/316 SS 0.500 OD X 0.049 WALL
(REF DART SPEC. M304TR0.500W0.049)
ENSURE SEAMLESS TUBE IS USED
 - 3 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2
COLOR BLACK;
CARDINAL 4860-50 PRETREATMENT PRIMER
PRIME IAW MIL-P-23377J TYPE I CLASS N
 4. DEBURR AND BREAK ALL SHARP EDGES
 5. WELDS IAW MIL-STD-2219.
TIG WELD WITH FILLER ROD

DOCUMENTS EFFECTED:	☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM	CHANGE CATEGORY	DER REVIEW REQUIRED
		☐ MAJOR ☒ MINOR	☐ YES ☒ NO

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

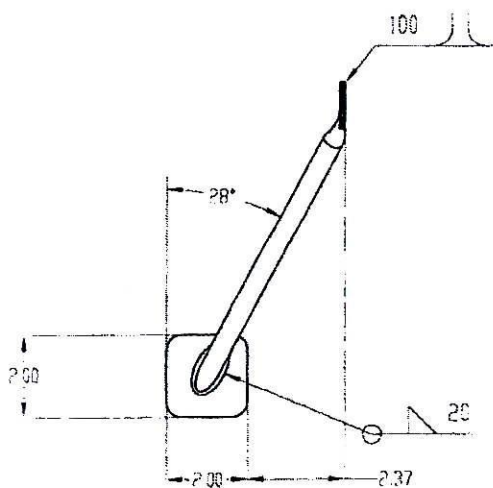
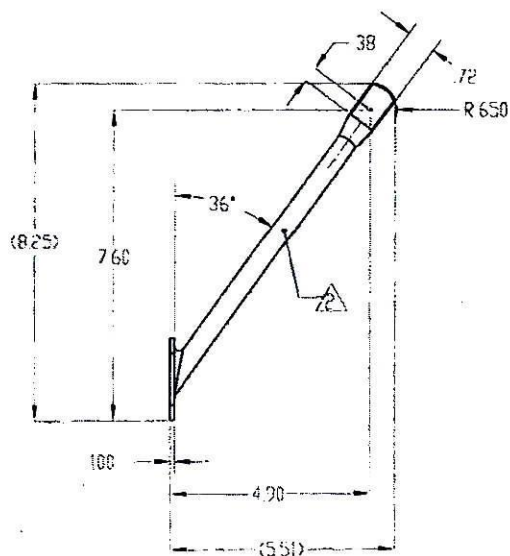
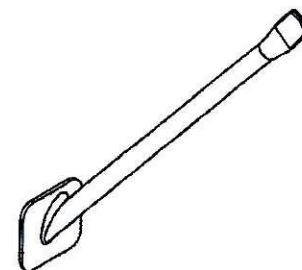
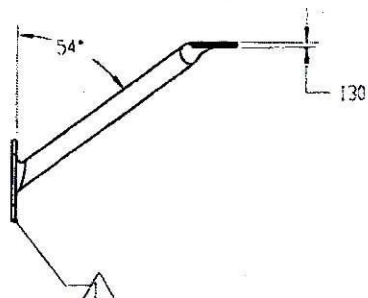
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTIC. NO. 02440		SHEET 1 OF 1	
	DWG NO. 646.3500	REV: NC	PREPARED BY S. HUFF	DATE 06/08/09
	EFFECT ON DWG ☐ INC. ☒ UNINC.			
DWG TITLE: STRUT				
APPROVED BY: ENGR <i>[Signature]</i>		MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFFECT: CURRENT ORDER AND STOCK
REASON: REVISED GEOMETRY TO ACCOMMODATE NEW EXISTING AIRCRAFT PROVISIONS				
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE				

SHEET 2 IS:



DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRU ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY
☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED
☐ YES ☒ NO

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

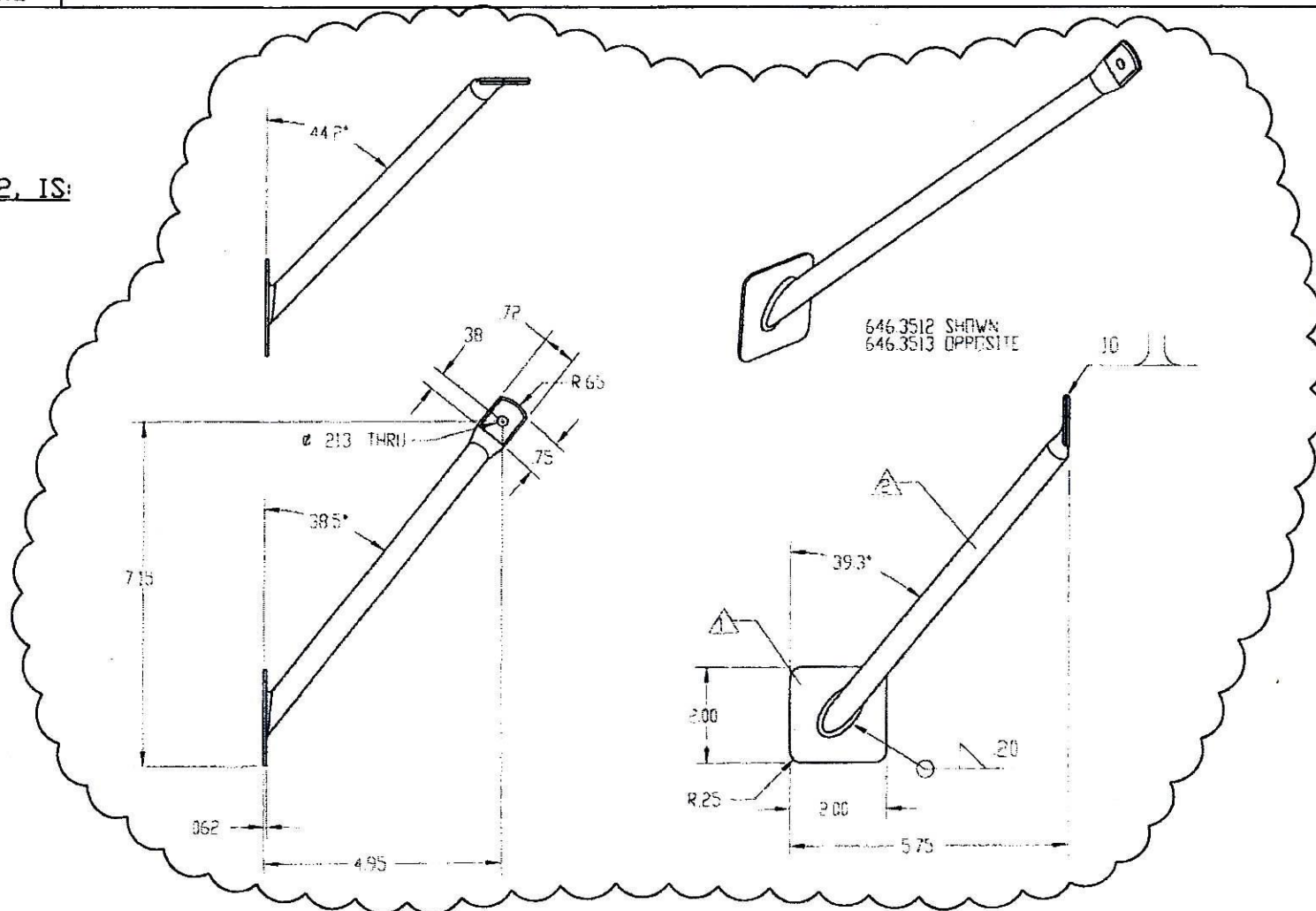
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 02197		SHEET 1 OF 1	
	DWG NO. 646.3500	REV: N/C	PREPARED BY S. HUFF	DATE: 01/05/09
	DWG TITLE: STRUT			
	APPROVED BY: ENGR <i>[Signature]</i>	MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED ANGLE OF 646.3512 & 646.3513 FOR BETTER FITMENT			

SHEET 2, IS:



DOCUMENTS EFFECTED:	☐ MDL ☐ INSTALL INSTRUC ☐ ICA ☐ FMS ☐ BOM	CHANGE CATEGORY	DER REVIEW REQUIRED
		☐ MAJOR ☒ MINOR	☐ YES ☒ NO

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

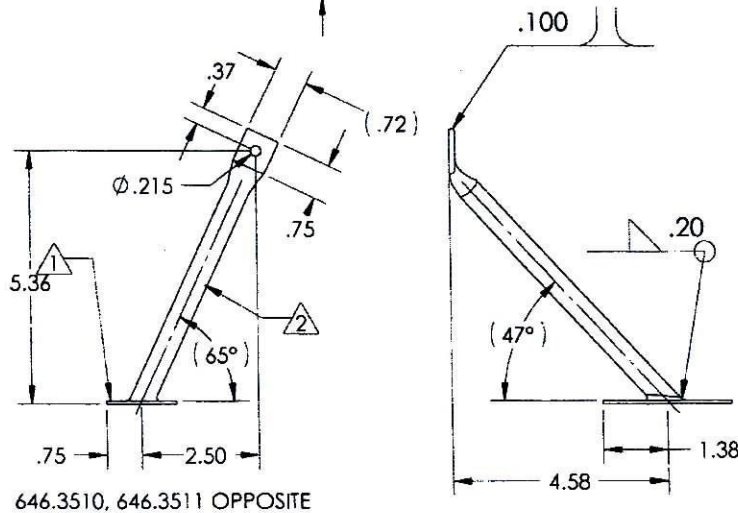
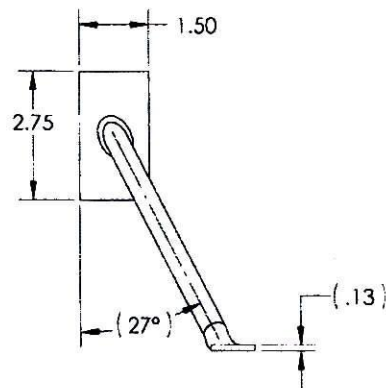
Work Order update only ☐

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THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES AND REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

NOTES:

- 1 MATERIAL: 6061-T6 ALUMINUM IAW AMS-QQ-A-250/11; .062" THK.
- 2 MATERIAL: 6061-T6 ALUMINUM IAW AMS-WW-T-700/6 .500" OD; .062" WALL THK
- 3 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2
COLOR BLACK;
CARDINAL 4860-50 PRETREATMENT PRIMER
PRIME IAW MIL-P-23377J TYPE I CLASS N
4. DEBURR AND BREAK ALL SHARP EDGES
5. WELDS IAW MIL-STD-2219.
TIG WELD WITH FILLER ROD



646.3510 SHOWN
646.3511 OPPOSITE

UNINCORPORATED ECN(S)

02197, 02440, 04274

		646.3513	STRUT	△△	△
		646.3512	STRUT	△△	△
		646.3511	STRUT	△△	△
		646.3510	STRUT	△△	△
	FIND #	PART #	DESCRIPTION	MAT'L	SPEC
QTY	PARTS LIST				
NEXT ASSY (S)			APICAL INDUSTRIES		
646.4000			2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300		
	DRAWING APPROVAL P. DIAVO 5/8/78 CIRCUITING		STRUT		
	JAMES CHAMBERLAIN SPECIFIED DIMENSIONS ARE TO BE TOLERANCES ARE FRACTIONAL 1/16 DECIMAL 0.005 FRACTIONAL 1/32		REV 2 2/26/61 CDDG INC NO B 07M26		FIN N/C
			646.3500		
			SCALE NONE		SHEET 1 OF 2

DQA: _____ Date: _____



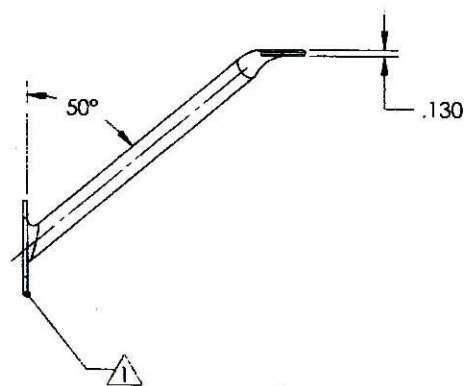
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

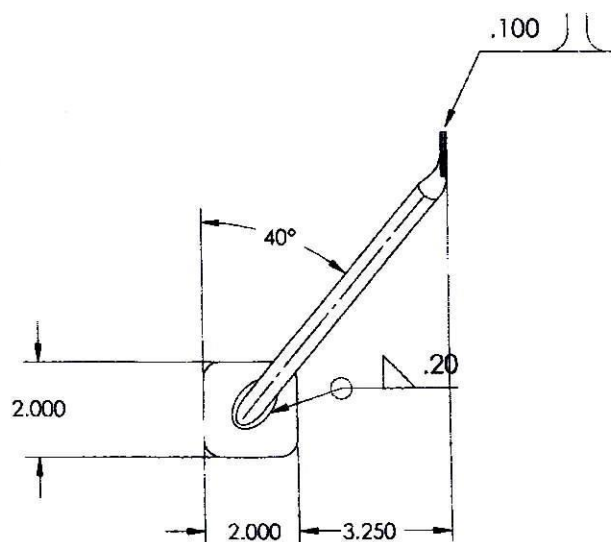
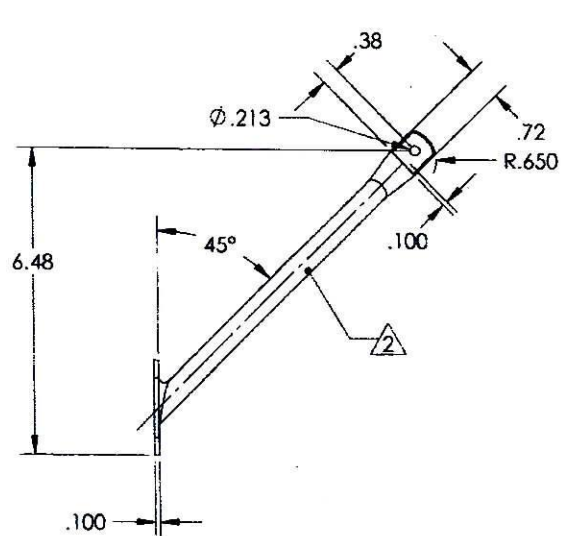
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								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : ☐			

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646.3512 SHOWN
646.3513 OPPOSITE



ORIGINAL DATE: 06/23/08 MODIFIED: 06/23/08 DESIGNED BY: J. BRADY DRAWING APPROVAL: J. BRADY CHECKED BY: J. BRADY CONTRACT NO.:			
APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300			
STRUT			
PART: 646.3512 QTY: 8 SCALE: NONE	CAGE CODE: 074426 DWG NO: 646.3500	REV: N/C	SHEET: 2 OF 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
Root Cause		FAULT CATEGORY																							
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Inventory

Operation Number	Operation	Serial Number	Job	Quantity	Weight	Original Serial Number ▲	Location	Container	Status	Added	Special Comments	Label	Supplier	Change No
Part Number: 646.3513 Revision: Strut														
250	QC21-SA	S026542	168238	6 Ea	0	S026542	CCK108A		Stock	12/22/2017	Issue Container			
Operation Totals:		1		6	0									
Part Totals:		1		6	0									
Part Number: M304S16GA Revision: 304/316 Sheet .063														
100	Receive sf	S026540	168238	0 sf	0		Start Up Large Fab-1		Stock	12/22/2017	Issue Container			
Operation Totals:		1		0	0									
Part Totals:		1		0	0									
Part Number: M304TR0.500W.049 Revision: 304 Round Tube .500 X .049W														
100	Receive Ft	S030064	168238	5 ft	0		GA002		Stock	1/8/2018	Issue Container			
		S030133	168238	2 ft	0	M138184	MAT013		Stock	1/8/2018	Issue Container			
Operation Totals:		2		6	0									
Part Totals:		2		6	0									
Totals:		4		12	0									

Plex 1/19/2018 10:18 AM dart.Gagnon.Michelle